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THE CONTRIBUTION OF INTERNAL AUDIT IN MANAGING BANKING RISKS AND EXPECTED BENEFITS OF THE BASEL II IMPLEMENTATION IN SERBIAN BANKS: EMPIRICAL RESEARCH

Internal audit in modern business environment, marked by globalization and harmonization, as a result of its own actions can express the assurance or provide consulting services to management at different hierarchy levels. It is performed with the aim to provide essential information on the management of financial funds, assets and economic activities, implementation and enforcement of law, but also to seek the best solutions for the successful achievement of tasks and misconduct prevention. The aim of the paper is to assess the importance of the internal audit function in banks as well as the role of internal audit concerning the improvement of key banking risks. The empirical research was carried out on the sample of 28 banks in the Republic of Serbia to examine the relationship of the internal audit impact on the management of these risks as well as the examination of the expected benefits of Basel II in Serbian banks, using the proper statistical methodology.

Keywords: internal audit; Basel II; liquidity risk; credit risk; interest rate risk; the risk of exposure and investment of a bank.

Біляна Жовкович, Славіца Жоветич, Снежана Любісавлевич РОЛЬ ВНУТРІШНЬОГО АУДИТУ В УПРАВЛІННІ БАНКІВСЬКИМИ РИЗИКАМИ ТА ОЧІКУВАНІ ПЕРЕВАГИ ВІД ВПРОВАДЖЕННЯ BASEL II У СЕРБСЬКИХ БАНКАХ: ЕМПІРИЧНЕ ДОСЛІДЖЕННЯ

У статті показано, що внутрішній аудит у сучасному бізнес-середовищі, який знаходиться під впливом глобалізації та гармонізації стандартів, може надавати послуги консалтингу для управлінців різних рівнів ієрархії. Аудит проводиться з метою надання інформації щодо управління фінансовими активами та економічної діяльності, дотримання правових норм тощо та сприяє досягненню цілей організації й попереджає порушення законодавства. Продемонстровано функцію внутрішнього аудиту у банках та його роль у зниженні банківських ризиків. Дослідження проведено на матеріалах 28 сербських банків, показано взаємозв'язок між внутрішнім аудитом в них та ризик-менеджментом. Надано оцінку очікуваним результатам впровадження стандартів Basel II у сербських банках з використанням статистичного апарату.

Ключові слова: внутрішній аудит; Basel II; ризик ліквідності; кредитний ризик; ризик відсоткової ставки; інвестиційний ризик банку.

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В статье показано, что внутренний аудит в современной бизнес-среде, находящейся под влиянием глобализации и гармонизации стандартов, может предоставлять услуги консалтинга для управленцев разных уровней иерархии. Аудит проводится с целью предоставления информации об управлении финансовыми активами и экономической

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деятельности, о соблюдении правовых норм и т.п., в то же время способствуя достижению целей организации и предотвращению нарушений законодательства. Продемонстрирована функция внутреннего аудита применительно к банкам и его роль в снижении банковских рисков. Исследование проведено на материалах 28 сербских банков, показана взаимосвязь между внутренним аудитом в них и риск-менеджментом. Дана оценка ожидаемым результатам от внедрения стандартов Basel II в сербских банках с использованием статистического аппарата.

Ключевые слова: внутренний аудит; Basel II; риск ликвидности; кредитный риск; риск процентной ставки; инвестиционный риск банка.

Introduction

The impact of the world economic crisis additionally emphasises the importance of proper management and understanding of the most important risks in banking. Internal audit, as an internal function of critical and permanent assessment of the regularity of delegated tasks, is able to contribute to efficient management of bank risks.

Internal audit, as a service, is independent and objective in the examination of accounting, financial, and other activities in order to give its opinion whether the calculations, information, and statements, provided by other organizational units within the subject of internal audit, are fairly and objectively made and presented and in accordance with the law and general acts of an audited entity.

Internal audit is defined as an "independent management function that includes constant and critical assessment of a bank in order to give suggestions for its improvement, create value, and strengthen the overall management mechanism, including the risk management of a subject and internal control system" (Spahic, 2008). Joseph Morris, the president of the Institute of Internal Auditors of the United Kingdom made the following statement: "There is no doubt that internal audit professionals play a major role in assisting managers in maintaining internal control." He concludes that internal audit is becoming the function, which consists of various business activities, and is expanding in the process of management, research, and development of a bank.

Internal audit is a continuous and extensive research into the seemingly good organization in order to gain an insight into the real situation or position of an organization and its environment, and to achieve better control over future operations (Obivion, 1976).

Internal auditors can play a critical role, in a modernly organized bank, in detecting and preventing illegal activities. Fraud, deception and unauthorized operations are the key illegal activities in this field. They can be executed in favor of or against the bank, by persons employed by the bank or by external entities. Therefore, an important task of internal audit is to assess if the given operation is in compliance with the law, business practice, and management activities. For this purpose, internal auditors evaluate the performance of accounting system and internal control system at a bank. Audit is the process of investigating and examining evidence to determine whether agreed-upon requirements are being met (Russel, 2007).

Finally, the role of internal audit is in the impact of the timely preparation of financial statements and contribution to the bank's corporate governance in general.

1. Functions of internal audit in RS banks

The regularity controls of a bank and the efficiency of internal control system are performed by internal audit and committee on banking supervision (Jovetic, 2007).

In addition to the law on banks and other financial institutions, the governor of the National Bank of Yugoslavia – NBY made the Decision on the basic principles of organization and operations of bank's internal audit and other financial institutions (Official Gazette, 2002) which defines the main objectives of internal audit, thus providing protection of bank's solvency and realistic presentation of its financial results. The decision also defines:

- the independence of internal auditor from the bank director, persons with special powers, and responsibilities in a bank;
- that internal auditor must not perform management tasks in the bank;
- the independence of internal auditor when deciding on the selection of method and manners of its application;
- that a bank must perform an internal audit function in accordance with internationally recognized standards of internal auditing and auditing of banks;
- the responsibilities of the board of directors regarding bank's acts (the adoption of the program and operational annual audit plan and conditions for their implementation, the appointment of internal auditors and determining their wages etc.);
- the commitment of internal auditor to report to a supervisory committee, bank director, and persons with special powers and responsibilities in the bank who are responsible for eliminating irregularities and deficiencies;
- the frequency of audit which should be increased for banks with higher risks;
- that director and persons with special powers and responsibilities in the bank shall be responsible for accepting or rejecting the recommendations of internal auditor, and for checking whether irregularities and deficiencies in the bank are effectively eliminated.

External regulatory bodies issue directives and guidance. Companies receive and assess these requirements and develop plans to integrate them into their operations or evaluate the risk of not fully implementing them (Hightover, 2009).

Specific objectives of the research result from the application of specific statistical methodologies are:

- Classification of banks by size and testing whether there is a statistically significant difference in assessing the importance of risk type according to the size of banks (large, medium, and small banks);
- Defining and measuring the statistical significance of interactive relationship between the bank size types.

2. Research hypotheses

The null hypotheses of the research are:

- There is no statistically significant difference between the contribution of internal audit to risk management, responses to all the questions, and large, medium, and small banks in population, e.g. the population is homogeneous regarding the observed characteristics, features.
- There is no statistically significant difference between the arithmetic means of features-risk types and responses to all the questions between large, medium, and small banks in population, e.g. the population is homogeneous regarding the observed characteristics, features.
- There is no statistically significant difference between the expected benefits from the implementation of the Basel II and large, medium, and small banks in pop-

ulation, e.g. the population is homogeneous regarding the observed characteristics, features.

3. Methods and techniques of the research

3.1. The type of the study. The research was conducted in the first quarter of 2011 in Serbia with the use of cross-sectional study – the survey. The survey included 28 banks on the territory of the Republic of Serbia.

The empirical research included the following 3 areas:

1. Methods and techniques of the research.
2. Basic data on banks.
3. Risks and internal audit.
4. Basel II and Internal Audit.

The empirical research begins with the collection of data through questionnaires, data processing, and drawing conclusions about the subject of the research in order to use the findings in wider social community. The performing of the research includes:

- Pre-research, since the collection of data on the appearance and the subject of the research begins with it;
- The collection, sorting, grouping, and processing of data for empirical research (statistical description method);
- Data analysis (statistical analysis);
- Conclusion and views on the research findings based on the quantitatively derived conclusions, and
- Recommendations on the use of research results in practice (Milosavljevic, Radosavljevic, 2003).

Statistical and modelling methods are general scientific methods which were used in the work. In addition, specific scientific methods and processes of reasoning were used in the research, such as analytic and synthetic methods, systemic thinking, classification and induction-deduction. The dominant methods used in the research are survey, content analysis, and statistical methods.

3.2. Subsets and the sample. The survey was conducted in 28 elementary units of which 8 are large banks, 10 medium and 10 small banks. The survey covered all large and medium banks on the territory of the Republic of Serbia, which means that there are two subsets, strata. The conclusion for small banks is that the research was conducted on the simple random sample of 10 elementary units. The survey was completed by the employees of banks' internal audit departments.

3.3. Description of the measuring instrument. The questionnaire consists of two main parts. At the beginning of the survey, banks provide the basic data, and these data are grouped into 6 questions. The second part refers to the importance of the contribution of internal audit to risk management according to the risk type. Finally, the third part of the questionnaire, one question, should assist in the assessment of expected benefit from the implementation of the Basel II Accord.

The scales are, depending on the questions and choices, different and range from 1 to 3 (the size of banks), and from 1 to 5 (the subordination of internal auditor, risk types, and expected benefits from the implementation of the Basel II Accord).

3.4. The statistical methodology. All the collected data on the banks surveyed were saved in a Microsoft Excel 2007 database. The analysis of statistical data was performed using the methods of:

– Statistical description: data were collected, grouped, and displayed using a histogram; arithmetic means and standard deviations of the total income, total assets, total capital and capital stock of large, medium, and small banks were determined. All value units, expressed in local currency (RSD), were converted into euros. The relative frequencies, arithmetic mean, standard deviation of each response for all large, medium, and small banks were determined;

– Statistical analysis: the hypotheses of distribution normality were tested using the Shapiro-Wilk's test; the hypothesis of equality of arithmetic means and statistical significance of the correlation coefficient were tested using the t-test.

Statistical analysis was performed by SPSS (version 15.0). For determining the statistical significance, the levels of confidence were 0.05 and 0.01.

4. Research results

4.1. Basic data on banks. The first part of the questionnaire contained questions of general character about the banks: name, location, and the country of bank origin; domestic or foreign bank, bank's organizational form (head office, subsidiary, representative office of a foreign bank), total income in 2010, total assets in 2010. Due to the lack of time or the need for confidentiality of data some of the banks did not complete the questionnaire and did not participate in the research.

Of the total number of banks, 61% are the banks with foreign capital, 39% are domestic banks. It is important to note that when it comes to foreign banks these are mostly domestic banks with foreign capital (from the following countries: France, Greece, Germany, Austria, Belgium, Slovenia). 54% are head offices; 39% are subsidiaries surveyed, and the branches are 7% of the survey.

All the surveyed banks were divided into 3 groups by their size: large, medium, and small ones.

9 largest banks by the number of employees are: Intesa, Komercijalna banka, Vojvodanska banka, Raiffeisen banka, Postanska stedionica, and Eurobank IFG. Medium banks in Serbia are: Credit Agricole, Unicredit Banka, Agrobanka, Hypo Aple Adria Bank, Razvojna banka Vojvodine, NLB banka, KBC banka, Piraeus bank, and AIK banka. Small banks according to the number of employees in the RS are: Univerzal banka, Volksbank, Cacanska banka, Credy banka, Srpska banka, Opportunity bank, Dunav banka, Jugobanka-jugbanka, and the Bank of Moscow. The data on all banks are given in Table 1.

Table 1. The total income, total assets, total capital and capital stock of large, medium and small banks, in euro

	Total income (in euro*)	Total assets (in euro*)	Total capital (in euro*)	Capital stock (in euro*)
Large banks				
Arithmetic means	318619,2107	1450482,8770	274978,8999	182914,0428
Standard deviations	279551,2822	993976,7088	179415,8311	96497,9368
Medium banks				
Arithmetic means	136521,0711	705798,5867	140151,9904	102842,1042
Standard deviations	111922,3016	426012,1607	87779,0266	36352,2503
Small banks				
Arithmetic means	35851,0727	305294,5553	73722,3717	50509,0001
Standard deviations	51095,9675	413282,8602	117820,5241	72900,8872

* (in euro; the average RSD for the first quarter; 1 euro = 109,2043 RSD)

4.2. Risks and internal audit. Almost every bank has a department (unit) that deals with risk management, and the risks are:

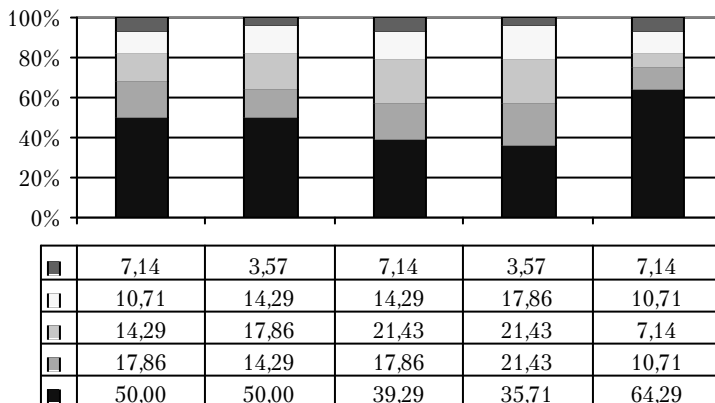
- liquidity risk (inability to timely settle matured short-term financial obligations, exactly on time as they fall due for implementation);
- credit risk (the probability that borrowers would not return credit by maturity date, together with accrued interest);
- interest rate risk, foreign currency risk, and market risk (interest rate risk is the unfavorable change in credit price, and foreign currency risks are unfavorable trends at the market);
- the risk of exposure and investment of a bank include the risks of bank's exposure to one entity or a group of related entities, while investment risks include the risks of bank's investments in entities in financial sector and in fixed assets;
- operational risk (it occurs if the expected level of earnings – profit is not achieved).

Traditionally, banks have considered credit risk management as the most important task but since banking has changed and market environment became more complex and more volatile a critical awareness of the need control exposure to other risks has evolved (Greuning, Brajovic Bratanovic, 2006).

According to the foregoing risks, the questionnaire offered responses to the question of the risks the banks are exposed to:

- liquidity risk;
- credit risk;
- interest rate risk, foreign currency risk, and market risk;
- the risk of exposure and investment of a bank, and
- operational risk.

The banks responded in % as presented in Figure 1.



Source: Developed by the authors.

Figure 1. The contribution of internal audit to risk management at banks, %

Most banks absolutely agree that internal audit can contribute to risk management of exposure and investment of a bank (64,29%), liquidity risk (50%), and credit risk (50%), a much smaller percentage of banks consider that internal audit contributes to the management of other risks: interest rate risk, foreign currency risk, market risk, and the risk of exposure and investment.

4.2.1. *Testing the hypotheses on the equality of arithmetic means.* The respondents were asked to assess the contribution of internal audit to risk management in banks ranging from 1 (the smallest contribution) to 5 (the highest). This allows testing the hypotheses on the equality of means, the average score of the responses of large, medium, and small banks.

The application of statistical methodology was carried out in several steps:

- the statistics of all 28 data were calculated;
- the hypotheses on the equality of empirical and normal distribution were tested for every question;
- the hypotheses on the equality of arithmetic means of the responses of small and large banks, and small and medium banks, were tested;
- correlation coefficients were calculated for all the responses. The variables are: Y – size of a bank, and X – the score from 1 to 5 for the responses to all the questions;
- hypotheses on the statistical significance of the correlation coefficient were tested. Since the sample is less than 50 elementary units, the testing of the hypotheses on the equality of empirical and normal distribution was carried out using the Shapiro-Wilk test (Table 2).

Table 2. Tests of Normality

Shapiro-Wilk			
Riscs			
I	II	III	IV
Questions	Statistic	df	Sig.
1.	,785	28	,000
2.	,795	28	,000
3.	,850	28	,001
4.	,864	28	,002
5.	,676	28	,000

Source: Developed by the authors.

The null hypothesis is: The distribution can be approximated as normal.

Alternative hypothesis is: The distribution cannot be approximated as normal.

Since the significance (column IV) for all the questions equals zero, the null hypothesis is rejected and that means the empirical distribution cannot be approximated as normal, or the characteristic, assessments of the contribution of internal audit to risk management in banks (from 1 to 5) according to risks, do not follow the normal distribution. However, since $n \approx 30$ for each research applies the same, that if the sample size/population is over 30, according to the central limit theorem, the observed characteristic/feature follows a normal distribution and all the conclusions that are drawn on the population concerning this characteristic are valid (Jovetic, 2007).

The variance of population σ^2 is unknown, the sample is small banks. Since the size of the sample $n = 10$ is less than 30, testing the hypothesis on the equality of arithmetic means is performed using the Student's standardized random test.

The statistics of the sample and the answers to the first question are:

- the number of elementary units in the sample $n_1 = 10$;
- average score in the sample $\bar{x}_1 = 3,6$;
- standard deviation in the sample $s_1 = 1,56205$.

The null hypothesis, $H_0: \mu = \mu_0$, is the arithmetic mean of the population sample from which the sample is selected (μ) and the arithmetic mean of hypothetical value (μ_0) are equal.

Alternative hypothesis, $H_1: \mu \neq \mu_0$ is the arithmetic mean of the population from which the sample is selected and arithmetic mean of hypothetical value are different.

This is a two-tailed test. Test statistics is the standardized Student's random:

$$|t| = \left| \frac{\bar{x} - \mu_0}{s_{\bar{x}}} \right| = \left| \frac{\bar{x} - \mu_0}{s/\sqrt{n}} \right|. \quad (1)$$

Table 3 shows all the values obtained. Column V shows the average value of the responses to the question of how internal audit contributes to each type of risk for large and medium banks. These are hypothetical arithmetic means. Column II and IV display the Student's t statistics and probability p which show the statistical significance of the test. Since $|t| < t_{v,\alpha/2}$ and $p > 0,05$ (Table 3, columns II and IV), in all the cases regarding large and medium banks, with the risk error of $\alpha = 0,05$ and $\alpha = 0,01$, the null hypothesis are accepted, i.e. there is no difference in the average score of responses between the population from which the sample was selected and the hypothetical value, the average score of large and medium banks' responses (Table 3, column V), concerning the contribution of internal audit to risk management in banks, i.e. the population is homogeneous regarding the responses on the contribution of internal audit to risk management in banks. The same conclusion can be drawn based on the analysis of the correlation coefficient.

Table 3. T-test statistics for each response regarding the risks and implementation Basel II Accord

Risks				
Small sample and hypothetical value (mean of the subset I – large banks)				
I	II	III	IV	V
Question	T-test statistics	The number of degrees of freedom (df)	Sig. (2-tailed) p	The mean of the score of large banks μ_0
I	-1,488	9	0,171	4,375
II	-1,571	9	0,151	4,25
III	-0,877	9	0,403	3,875
IV	-0,885	9	0,399	4,0
V	-1,429	9	0,187	4,5
Risks				
Small sample and hypothetical value (mean of the subset II – medium banks)				
I	II	III	IV	V
Question	T-test statistics	The number of degrees of freedom (df)	Sig. (2-tailed) p	The mean of the score of medium banks μ_0
I	-0,576	9	0,579	3,9
II	-1,257	9	0,240	4,1
III	-0,739	9	0,479	3,8
IV	0,221	9	0,830	3,5
V	0,816	9	0,435	4,2
Basel II Accord and the Internal Audit				
Small sample and hypothetical value (mean of the subset I – large banks)				
VI	0,491	9	0,635	4,25
Small sample and hypothetical value (mean of the subset II – medium banks)				
VII	2,291	9	0,048	3,7

Source: Author's construction.

4.3. Basel II Accord and the Internal Audit. Historically, bank regulation has cycled between the periods of increasing and decreasing regulation. We are currently in the period of deregulation. The main types of regulation subject to these trends have been interest rate ceilings, restrictions on providing non-banking services and geographical restrictions (Rayan, 2007). The Basel II Accord was introduced in order to align the regulations of banking systems around the world. The Basel II Accord was founded on the shortcomings of Basel I in 2004, with mandatory application from 2007, but the deadline was extended. The main objectives of the Basel II introduction are:

- to further strengthen the stability of banking sector and financial system;
- to improve risk management in banks;
- to increase transparency and market discipline;
- alignment with business conditions at international financial market;
- alignment with regulations of the European Union;
- to strengthen the relationship between capital and risk exposure of banks.

The standards of Basel II Accords are organized into the following 3 interrelated pillars: Pillar I defines the principles of minimum capital adequacy of a bank. Pillar II defines the process principles of capital adequacy supervision as well as the model and the methodology that banks use for risk management. Pillar III defines the principles of market discipline through bank's commitment to make the relevant information on risks and capital of the bank, which allow other participants of the market to assess risk management and bank capital, publicly available. The preparation and implementation of the Basel III, which will also be binding for all banks, are already in progress.

The respondents were asked to assess the expected benefits from the implementation of the Basel II: very big (5), (b) big (4), (c) very small (3), (d) small (2), and (e) no benefits (1). Serbian bankers believe that the expectations from the Basel II Accord implementation are very high (32.14%), and high (39.29%), while some banks believe that the expectations are low (21.43%), and very low (7.14%). The variable Y – the following scale values indicate the size of the bank: 1 – large banks, 2 – medium banks, and 3 – small banks; the variables (X) is the score of responses to the question on the expected benefits from the implementation of the Basel II.

In case of testing the difference of sample arithmetic means and the hypothetical values, the average score of responses of large banks on the expectations benefits from the Basel II Accord implementation in banks (Table 3, column V), since $|t| < t_{v,a/2}$ and $p > 0,05$ (Table 3, columns II and IV), with the risk of error $\alpha = 0,05$, the null hypothesis is accepted, which means there is no difference in the average score of responses between the population from which the sample was chosen and the hypothetical value, the average score of large banks concerning.

In case of testing the difference of sample arithmetic means and the hypothetical values, the average score of responses of medium banks on the expectations benefits from the Basel II Accord implementation in banks (Table 3, column V), since $|t| > t_{v,a/2}$ and $p < 0,05$ (Table 3, columns II and IV), with the risk of error $\alpha = 0,05$, the null hypothesis is rejected; the alternative hypothesis is accepted. It means there is a difference in the average score of responses between the population from which

the sample was chosen and the hypothetical value, the average score of medium banks concerning the expected benefits from the Basel II Accord implementation in banks, i.e. the population is not homogeneous by the responses concerning the expected benefits from the Basel II Accord implementation.

Conclusion

Internal audit as an independent expertise in a bank, is set solely for the purpose of testing, evaluation, and management of operational business activities with the ultimate goal of maximizing the efficiency. Efficient operation of a bank implicitly contributes to successful management of main business risks in banking.

It can also be expected that internal audit will be increasingly directed at anticipating potential risks in certain areas and advising management on a number of risk management possibilities in terms of designing and supervision of an appropriate internal control system that will effectively reduce the risks.

The majority of banks at Serbian banking market are foreign banks (61%). Most of the banks included in the survey are organizationally positioned as head offices (54%), followed by subsidiaries (39%) and branches (7%).

The survey conducted on 28 banks in Serbia showed the following:

- Banks surveyed believe that internal audit primarily contributes to the management of risk exposure and investment of a bank (64.29), and liquidity risk (50%);

- The conclusions, based on the analysis of testing the hypotheses on the equality of arithmetic means, are: the scores of the responses regarding the contribution of internal audit to all risks management in banks does not depend on bank size. The correlation coefficients between bank size and the score of responses regarding the contribution of internal audit to risk management in a bank show the same, i.e. relative frequencies of all banks also apply for small, medium, and large banks.

- According to the respondents, the smallest contribution of internal audit in bank risks management is in managing interest rate, foreign exchange, and market risks (score 3,85) and managing the risk of exposure and bank investments (score 3,5).

- Expected benefits from the implementation of Basel II Accord in banks are high and very high (71,40%). There is no difference in the average score of responses between the population from which the sample was chosen and hypothetical value, the average score of large banks (score 4,25). In case of testing the difference of sample arithmetic means and hypothetical values, the average score of medium banks concerning the expected benefits from the Basel II Accord implementation in banks, the alternative hypothesis is accepted (score 3,70); the population is not homogeneous regarding the responses concerning the expected benefits from the Basel II Accord implementation. The respondents in medium-sized banks consider that expected benefits from the implementation of Basel II Accord are somewhat lower.

Internal audit in banks is a continuous process which takes place during its business with greater or less intensity determined by specific business situation in business or manager's order.

We can conclude that internal auditor is actually a consultant to bank's management and has responsible tasks; therefore, audit limited to providing advice and suggestions and cannot be deprived of its independence.

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